

Лабораторная работа №2

Конфигурация репозиториев SVN и Git

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1 Задание

Сконфигурировать в домашнем каталоге репозитории SVN и Git, загрузить в них начальные файлы исходного кода и воспроизвести последовательность операций согласно предоставленной блок-схеме ветвлений и коммитов (r0–r14).

2 Список команд Git и SVN

2.1 Git

Ниже приведён shell-скрипт в формате Bash со цветовой подсветкой, выполняющий всю последовательность коммитов и ветвлений:

```
1  #!/bin/bash
2  set -e
3
4  #
5  git init
6
7  git remote add origin https://github.com/inertmao/Lab20pi
   .git
8  echo -e "\n[merge]\n\ttool = nano" >> .git/config
```

```

9
10 # red

11 git config user.name "red"
12 git config user.email "red@example.com"
13
14 # r0: Initial commit (red)
15 unzip -o commits/commit0.zip -d src
16 git add src
17 git commit -m "r0 Initial commit (red)"
18 git tag r0
19 git push -u origin master
20
21 # r1, r6:          branch2 (red)
22 git checkout -b branch2 r0
23 unzip -o commits/commit1.zip -d src
24 git add src
25 git commit -m "r1 (red)"
26 git tag r1
27 unzip -o commits/commit6.zip -d src
28 git add src
29 git commit -m "r6 (red)"
30 git tag r6
31 git push -u origin branch2
32
33 # r2, r4, r8, r10, r11, r12: master (red)
34 git checkout master
35 unzip -o commits/commit2.zip -d src
36 git add src
37 git commit -m "r2 (red)"
38 git tag r2
39 unzip -o commits/commit4.zip -d src
40 git add src
41 git commit -m "r4 (red)"
42 git tag r4

```

```

43 unzip -o commits/commit8.zip -d src
44 git add src
45 git commit -m "r8 (red)"
46 git tag r8
47
48 # r 1 0 r12
49 unzip -o commits/commit10.zip -d src
50 git add src
51 git commit -m "r10 (red)"
52 git tag r10
53 unzip -o commits/commit11.zip -d src
54 git add src
55 git commit -m "r11 (red)"
56 git tag r11
57 unzip -o commits/commit12.zip -d src
58 git add src
59 git commit -m "r12 (red)"
60 git tag r12
61
62 git push origin master
63
64 # r3, r5, r7, r9, r13: branch3 (blue)
65 git checkout branch3 r2
66
67 #
68 git config user.name "blue"
69 git config user.email "blue@example.com"
70
71 unzip -o commits/commit3.zip -d src
72 git add src
73 git commit -m "r3 (blue)"
74 git tag r3
75 unzip -o commits/commit5.zip -d src
76 git add src
77 git commit -m "r5 (blue)"

```

```
78 git tag r5
79
80 # r7: merge branch2      branch3 +

81 git merge --no-ff --no-commit branch2
82 unzip -o commits/commit7.zip -d src
83 git add src
84 git commit -m "r7 (blue) Merge branch2 into branch3 +
    changes"
85 git tag r7
86
87 unzip -o commits/commit9.zip -d src
88 git add src
89 git commit -m "r9 (blue)"
90 git tag r9
91 unzip -o commits/commit13.zip -d src
92 git add src
93 git commit -m "r13 (blue)"
94 git tag r13
95 git push origin branch3
96
97 # r14: merge branch3      master
98 git checkout master
99 git merge --no-ff branch3 -m "r14 (red) Merge branch3
    into master"
100 git tag r14
101 git push origin master
```

A Тест:

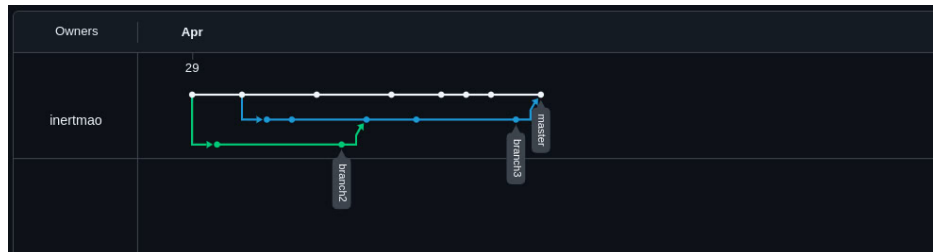


Рис. 1: git - test

A.1 SVN

Пример основных операций в SVN:

```
1 #
2 # 0)
3
4
5 # 1)
6
7
8
9
10
11
12
13 # 2) r0:
14
15
16
17
18
```

```
svnadmin create /home/inertmao/lab2/svn_repo

:

trunk, branches, tags

svn mkdir \
  file:///home/inertmao/lab2/svn_repo/trunk \
  file:///home/inertmao/lab2/svn_repo/branches \
  file:///home/inertmao/lab2/svn_repo/tags \
  -m "Initialize repository structure" \
  --username red

initial snapshot trunk red

unzip -o /home/inertmao/Desktop/opi/Lab20pi/commits/
  commit0.zip -d /tmp/svn-import

svn import /tmp/svn-import \
  file:///home/inertmao/lab2/svn_repo/trunk \
  -m "r0 Initial import (red)" \
  --username red
```

```

19 rm -rf /tmp/svn-import
20
21 # 3)          r0
22 svn copy \
23   file:///home/inertmao/lab2/svn_repo/trunk \
24   file:///home/inertmao/lab2/svn_repo/tags/r0 \
25   -m "Tag r0" \
26   --username red
27
28 # 4)          trunk
29 svn checkout \
30   file:///home/inertmao/lab2/svn_repo/trunk \
31   /home/inertmao/lab2/svn_work
32
33 # 5)          branch2      r0
34 svn copy \
35   file:///home/inertmao/lab2/svn_repo/tags/r0 \
36   file:///home/inertmao/lab2/svn_repo/branches/branch2 \
37   -m "Create branch2 from r0" \
38   --username red
39
40 svn checkout \
41   file:///home/inertmao/lab2/svn_repo/branches/branch2 \
42   /home/inertmao/lab2/branch2_work
43
44 # 6) r1:          branch2      red
45 cd /home/inertmao/lab2/branch2_work
46 unzip -o /home/inertmao/Desktop/opi/Lab20pi/commits/
47   commit1.zip -d .
48 svn add --force .
49
50 # 7)          r1
51 svn copy \
52   file:///home/inertmao/lab2/svn_repo/branches/branch2 \

```

```

53 file:///home/inertmao/lab2/svn_repo/tags/r1 \
54 -m "Tag r1" \
55 --username red
56
57 # 8) r2:                trunk        red
58 cd /home/inertmao/lab2/svn_work
59 svn update
60 unzip -o /home/inertmao/Desktop/opi/Lab20pi/commits/
    commit2.zip -d .
61 svn add --force .
62 svn commit -m "r2 (red)" --username red
63
64 # 9)                r2
65 svn copy \
66 file:///home/inertmao/lab2/svn_repo/trunk \
67 file:///home/inertmao/lab2/svn_repo/tags/r2 \
68 -m "Tag r2" \
69 --username red
70
71 # 10)                branch3        r2 (
    blue)
72 svn copy \
73 file:///home/inertmao/lab2/svn_repo/trunk \
74 file:///home/inertmao/lab2/svn_repo/branches/branch3 \
75 -m "Create branch3 from r2" \
76 --username blue
77
78 svn checkout \
79 file:///home/inertmao/lab2/svn_repo/branches/branch3 \
80 /home/inertmao/lab2/branch3_work
81
82 # 11) r3:                branch3        blue
83 cd /home/inertmao/lab2/branch3_work
84 unzip -o /home/inertmao/Desktop/opi/Lab20pi/commits/
    commit3.zip -d .

```

```

85  svn add --force .
86  svn commit -m "r3 (blue)" --username blue
87
88  # 12)          r3
89  svn copy \
90      file:///home/inertmao/lab2/svn_repo/branches/branch3 \
91      file:///home/inertmao/lab2/svn_repo/tags/r3 \
92      -m "Tag r3" \
93      --username blue
94
95  # 13) r5:          branch3
96      blue
97  unzip -o /home/inertmao/Desktop/opi/Lab20pi/commits/
98      commit5.zip -d .
99  svn add --force .
100  svn commit -m "r5 (blue)" --username blue
101
102  # 14)          r5
103  svn copy \
104      file:///home/inertmao/lab2/svn_repo/branches/branch3 \
105      file:///home/inertmao/lab2/svn_repo/tags/r5 \
106      -m "Tag r5" \
107      --username blue
108
109  # 15) r4:          trunk          red
110  cd /home/inertmao/lab2/svn_work
111  svn update
112  unzip -o /home/inertmao/Desktop/opi/Lab20pi/commits/
113      commit4.zip -d .
114  svn add --force .
115  svn commit -m "r4 (red)" --username red
116
117  # 16)          r4
118  svn copy \
119      file:///home/inertmao/lab2/svn_repo/trunk \

```



```

117 file:///home/inertmao/lab2/svn_repo/tags/r4 \
118 -m "Tag r4" \
119 --username red
120
121 # 17) r6:                branch2        red
122 cd /home/inertmao/lab2/branch2_work
123 svn update
124 unzip -o /home/inertmao/Desktop/opi/Lab20pi/commits/
    commit6.zip -d .
125 svn add --force .
126 svn commit -m "r6 (red)" --username red
127
128 # 18)                r6
129 svn copy \
130 file:///home/inertmao/lab2/svn_repo/branches/branch2 \
131 file:///home/inertmao/lab2/svn_repo/tags/r6 \
132 -m "Tag r6" \
133 --username red
134
135 # 19) r7:                b r a n c h 2 branch3 + snapshot
    commit7
136 cd /home/inertmao/lab2/branch3_work
137 svn update
138 svn merge file:///home/inertmao/lab2/svn_repo/branches/
    branch2 .
139 #
140 unzip -o /home/inertmao/Desktop/opi/Lab20pi/commits/
    commit7.zip -d .
141 svn add --force .
142 svn commit -m "r7 (blue) Merge branch2 into branch3 +
    changes" --username blue
143
144 # 20)                r7
145 svn copy \

```

```

146 file:///home/inertmao/lab2/svn_repo/branches/branch3 \
147 file:///home/inertmao/lab2/svn_repo/tags/r7 \
148 -m "Tag r7" \
149 --username blue
150
151 # 21) r8:                trunk        red
152 cd /home/inertmao/lab2/svn_work
153 svn update
154 unzip -o /home/inertmao/Desktop/opi/Lab20pi/commits/
    commit8.zip -d .
155 svn add --force .
156 svn commit -m "r8 (red)" --username red
157
158 # 22)                r8
159 svn copy \
160 file:///home/inertmao/lab2/svn_repo/trunk \
161 file:///home/inertmao/lab2/svn_repo/tags/r8 \
162 -m "Tag r8" \
163 --username red
164
165 # 23) r9:                branch3       blue
166 cd /home/inertmao/lab2/branch3_work
167 svn update
168 unzip -o /home/inertmao/Desktop/opi/Lab20pi/commits/
    commit9.zip -d .
169 svn add --force .
170 svn commit -m "r9 (blue)" --username blue
171
172 # 24)                r9
173 svn copy \
174 file:///home/inertmao/lab2/svn_repo/branches/branch3 \
175 file:///home/inertmao/lab2/svn_repo/tags/r9 \
176 -m "Tag r9" \
177 --username blue
178

```

```

179 # 25) r 1 0 r12 :
                                     trunk      red
180 cd /home/inertmao/lab2/svn_work
181 svn update
182 for n in 10 11 12; do
183     unzip -o /home/inertmao/Desktop/opi/Lab20pi/commits/
        commit${n}.zip -d .
184     svn add --force .
185     svn commit -m "r${n} (red)" --username red
186     svn copy \
187         file:///home/inertmao/lab2/svn_repo/trunk \
188         file:///home/inertmao/lab2/svn_repo/tags/r${n} \
189         -m "Tag r${n}" --username red
190 done
191
192 # 26) r13:
                                     branch3
        blue
193 cd /home/inertmao/lab2/branch3_work
194 svn update
195 unzip -o /home/inertmao/Desktop/opi/Lab20pi/commits/
        commit13.zip -d .
196 svn add --force .
197 svn commit -m "r13 (blue)" --username blue
198 svn copy \
199     file:///home/inertmao/lab2/svn_repo/branches/branch3 \
200     file:///home/inertmao/lab2/svn_repo/tags/r13 \
201     -m "Tag r13" \
202     --username blue
203
204 # 27) r14:
                                     branch3 trunk + snapshot
        commit14      red
205 cd /home/inertmao/lab2/svn_work
206 svn update
207 svn merge file:///home/inertmao/lab2/svn_repo/branches/
        branch3 .

```

```

208 #
209 unzip -o /home/inertmao/Desktop/opi/Lab20pi/commits/
    commit14.zip -d .
210 svn add --force .
211 svn commit -m "r14 (red) Merge branch3 into trunk +
    changes" --username red
212
213 # 28)      r14
214 svn copy \
215     file:///home/inertmao/lab2/svn_repo/trunk \
216     file:///home/inertmao/lab2/svn_repo/tags/r14 \
217     -m "Tag r14" \
218     --username red

```

A Тест:

```

[~/lab2/branch3_work]
inertmao> svn checkout file:///home/inertmao/lab2/svn_repo/tags/r7 ~/lab2/check-r7
A    /home/inertmao/lab2/check-r7/*
A    /home/inertmao/lab2/check-r7/B.java
A    /home/inertmao/lab2/check-r7/E.java
A    /home/inertmao/lab2/check-r7/Lab4.java
Checked out revision 26.

[~/lab2/branch3_work]
inertmao> svn checkout file:///home/inertmao/lab2/svn_repo/tags/r6 ~/lab2/check-6
A    /home/inertmao/lab2/check-6/*
A    /home/inertmao/lab2/check-6/B.java
A    /home/inertmao/lab2/check-6/E.java
A    /home/inertmao/lab2/check-6/Lab4.java
Checked out revision 26.

[~/lab2/branch3_work]
inertmao> svn checkout file:///home/inertmao/lab2/svn_repo/tags/r0 ~/lab2/check-0
A    /home/inertmao/lab2/check-0/B.java
A    /home/inertmao/lab2/check-0/E.java
A    /home/inertmao/lab2/check-0/Lab4.java
Checked out revision 26.

```

Рис. 2: svn - test

В Выводы

В ходе работы освоены:

- Инициализация и настройка Git/SVN-репозитория
- Управление пользователями и ветвлением
- Использование тегов для фиксации ревизий
- Merge-коммиты с несколькими родителями
- Применение аналогичных операций в SVN

А Блок-схема

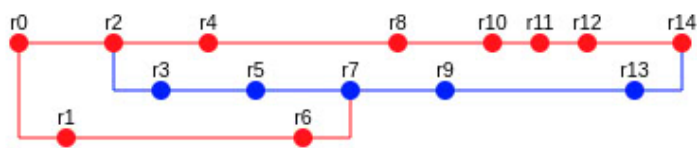


Рис. 3: Схема коммитов и ветвлений (ревизии r0–r14)